

OPERATOR DIGEST

QUARTERLY NEWSLETTER
of the Environmental Operators
Certification Program BC/Yukon



JAN 2017 | NUMBER 131

INNOVATION

KELOWNA WWTP PUTS A LID ON ODOURS

The plant is right in town so odour control is imperative! EOCP directors Mike Gosselin and Peter Coxon look at the covered primary clarifiers that along with the biological odour control system reduce odours emanating from the plant. P 4



PLANT PROFILE VERNON WWTP

Advanced nutrient removal
& UV light disinfection. P 6



OPERATOR PROFILE

Meet Todd Etherington,
Utilities
Operations
Superintendent.

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BIG CHANGES IN 2017

Updated IT
system, expiry
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Certificates,
and more.

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BEGIN YOUR PO JOURNEY TODAY

Incentives to
achieve your
Professional
Operator
Designation.

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EOCP 50 YEARS

OPERATOR DIGEST

The **Operator Digest** is the official newsletter of the **Environmental Operators Certification Program**.

Submissions for publication in the Digest are welcome. Please email them to the EOCP office at eocp@eocp.ca

Changes of address, annual dues, Continuing Education Requirements, exam applications, as well as general inquiries about the program should be addressed to:

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Publications Mail Agreement
No. 41498030

The Environmental Operators Certification Program is a charter member of the Association of Boards of Certification and is a registered society with more than 4,500 active members.

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BIG CHANGES IN 2017

Message from the Directors and Staff



Pat Miller



Kalpna Solanki

Heraclitus stated “The Only Thing That Is Constant Is Change”, and that holds true for all the changes at the EOCP!

There have been numerous changes at the EOCP during the past year, starting with a rebranding, customer relationship management initiatives, a new governance structure, participation in our first-ever career fair, development of one and three-year strategic plans, and office renovations.

Change being a constant, following are some initiatives planned for 2017:

1. Our **updated IT system** will be implemented in early 2017. This updated system will allow for better integration between facility classification, Operator certification, and the Training Registry.
2. **CEU tracking fees** previously charged to training and education providers are **eliminated** as of January 1st, 2017. We still need training and education providers to submit course or conference completion forms for each Operator, but there will no longer be a charge for this.
3. All **Operator certificates** issued as of January 1st 2017 will have **expiry dates**.
4. We are working on the finalization of **new facility classification models**. These models are a first for North America, and we anticipate they will be implemented in other jurisdictions as well. We will be planning a consultation process and roll-out schedule of the new models starting mid 2017.
5. We are also working on the development of a **competency framework** for Operators at all four levels, for all four disciplines. The framework works under the ‘Need to Know Criteria’ established by the Associated Boards of Certification (ABC) so that reciprocity agreements with other jurisdictions continue, however skills required for each level will be more clearly identified.

6. Last, but definitely by no means least, the EOCP is working with the Certification Commission for Environmental Professionals (C₂EP) of the Association Boards of Certification (ABC) to provide special benefits this spring to Operators interested in earning the Professional Operator designation, a uniformly recognized symbol of professional competence and integrity. We are elated to be able to offer this opportunity for professional recognition to Operators working in British Columbia and Yukon.

Candidates should submit an online application via the C₂EP portal, and if approved, would write the necessary exam at one of 13 approved locations in BC during the month of May. Upon meeting requirements, a candidate would be recognized as a Professional Operator and be entered into a drawing for a chance to win a trip to WEFTEC 2017 or AWWA ACE18!

We look forward to continue working with you, and we would like to thank all of you who work so diligently to further the work of Environmental Operators in the water and wastewater sector.

Pat Miller, Chair

Kalpna Solanki, Chief Executive Officer

OPERATOR PROFILE

Todd Etherington

Utilities Operations Superintendant,
Cowichan Valley Regional District



How did you become an Operator?

In 1999, I was attending college when my wife had a career opportunity in West Vancouver. We moved to the Lower Mainland, and I applied for a six-month labourer position in West Vancouver, and the position continued. At that time there were some utility Operators retiring, and I was put under the wing of a senior Operator and got training on the job. Concurrently, I also attended night school at BCIT to take courses related to public works. As an Operator, I started with hydrant maintenance, then worked on new watermain and sewer installation, and then moved up over the years into my current position, as Utility Operations Superintendant with the Cowichan Valley Regional District.

What do you most enjoy about the job?

I enjoy the variety as I get to work in all four disciplines. While this makes recruitment more difficult, it makes for an interesting day, every day. I have a very hard working, talented crew and the CVRD is a great place to work.

What has surprised you most about your job?

That people don't have any idea about what is involved in getting water from source to tap – to make water palatable and potable. Similarly, they know little about what is involved in wastewater collection and treatment. The general population has little idea of this essential work done by Operators.

What do you find most challenging about your work?

Finding suitable staff with experience

in all four disciplines. There is also the ongoing demand due to changes in legislation such as regulations related to surface water treatment.

What do you wish other people knew about working as an Environmental Operator?

It would be great if people knew more about what is required to make water safe to drink, and wastewater safe to discharge. For example, recent upgrades to one of our wastewater treatment plants has had a tremendous, positive impact on the discharge environment, which is an ocean outfall.

Can you tell me about the collaboration initiatives you have been involved in with the Capital Regional District?

The initiative was started by Todd Scaber, Operations Manager at CRD, initially to address the issue of replacing aging infrastructure. Our first meeting turned out to be an extremely collaborative effort that was a great format for sharing knowledge. We found that there were a number of SOPs, SWPs, and other matters in common that could be used at several scenarios with minor site specific changes. In addition, when there is a course offered, other local member municipalities are invited to attend as well. This has resulted in more Operators being able to attend courses without having to go to the mainland, and be away from their work and families for extended periods of time. Currently, the group comprises of CVRD, City of Victoria, CRD, Municipality of Saanich, Comox Valley Regional District, and the Municipality of North Cowichan. We will be meeting every six months, and future meetings will include even more Vancouver Island municipalities.

What are some opportunities in the field of Environmental Operator?

For a young person entering this field, it's a great and rewarding career choice with lots of opportunity if you have the right attitude and work ethic.

What do you do when you aren't working?

My wife and I are very busy with two kids in sports, we love being outdoors fishing, mountain biking, and skiing.

What else can you tell me about working in this field?

As an Operator you need to work with people in every walk of life. The field is always evolving, and there is always something new. I am extremely lucky to be where I am!

WHO'S ON THE MOVE

Wayne Hand

PEng, MBA BCIT School of
Construction and the Environment



Wayne Hand is the new Dean of the School of Construction and the Environment (SOCE) at the British Columbia Institute of Technology (BCIT), one of the largest post-secondary institutions and the largest provider of vocational and trades training in British Columbia.

Under Wayne's direction, SOCE has seen the development of significant research programs and capacity building relating to building science and architectural ecology, the successful application and execution of various industry and government grants, in particular, BCIT's first Canada Research Chair. Wayne also has led the development of numerous credentials, including two Master's degrees in Building Science and continues to support the School's programming in sustainability education. He is a strong believer that one of SOCE's greatest strengths is its diversification of programming that includes a large part-time studies component, as well as certificate, apprenticeship, diploma, bachelor, and master programs, along with research centres and industry services. **Included here are six new courses available at BCIT that are suitable for Operators.**

Wayne is a Registered Professional Engineer with the Association of Professional Engineers and Geoscientists of BC. He holds a Bachelor of Science in Civil Engineering from the University of Alberta and a Master of Business Administration from the University of Calgary.



The Administration building.

INNOVATION

KELOWNA CITY'S ENERGY-SAVING WWTP FACILITY

Kelowna City received the Conservation Excellence Award from Fortis BC in 2012 in recognition of outstanding leadership in energy efficiency at its wastewater treatment facility through sustainable choices and innovative projects, including a LEED Silver Operations and Maintenance Building.

The City of Kelowna Wastewater Treatment Facility treats 37 million liters per day (MLD) of wastewater meeting stringent Ministry of Environment standards and discharges it to Okanagan Lake. The facility currently services approximately 90 percent of Kelowna residents.

The facility has been in its current location since 1913. Over the years, there have been several facility changes and upgrades. The most critical upgrade came in the 1990s when the facility was changed to a Biological Nutrient Removal Process (BNR) facility.

The most recent upgrade to the Kelowna Wastewater Treatment Facility began in 2007, with costs totalling an estimated 50 million dollars once it was completed in 2012. That upgrade increased facility structures and tankage, replaced equipment and components, and upgraded process aeration, odour control and SCADA technologies. In addition, the facility capacity was increased from 40 MLD to 70 MLD which is estimated to service the Kelowna population as it grows to well past 2030.

The 2007 upgrade also included treatment improvements including fine bubble aeration, cloth media filters, influent plate screens, additional biological reactors, secondary clarifiers, primary clarifiers and state of the art odour control system and SCADA system, and focused on energy conservation. Significant time and effort was dedicated to exploring different equipment and configurations which would allow the city

"Through expansion of the Wastewater Treatment Facility we have been able to expand our capacity for service while reducing our energy footprint and saving costs. Part of the upgrade included installing equipment that increases the facility's energy efficiency. By building to LEED Gold Standards in parts of the project, we have been able to reduce energy and GHG emissions, conserve water to help the environment and our community, and create a healthy work environment for our employees."

Mike Gosselin
Acting utility
services
manager on
accepting
the Fortis
award.



The Kelowna Wastewater Treatment Facility is located in a densely-populated area of the city surrounded by residential housing, Okanagan College and a high school.



Secondary Clarifiers were part of the 2007 Upgrade. A state of the art odour control system contributes to community relations.

to reduce energy consumption. The time and research invested was worthwhile and delivered impressive results. The facility reduced its power consumption equating to enough power saved to service 40 homes in Kelowna area on an annual basis.

As a result, the City received the Conservation Excellence Award from Fortis BC in 2012 for recognition in outstanding leadership in energy efficiency through sustainable choices and innovative projects, including a LEED Silver Operations and Maintenance Building.

The facility is run by highly trained and skilled staff that includes Operators, millwrights, electricians, instrument technicians and laboratory staff. All Operators maintain EOCB Certification in Wastewater Treatment. Operator Certifications range from Level I through to Level IV.

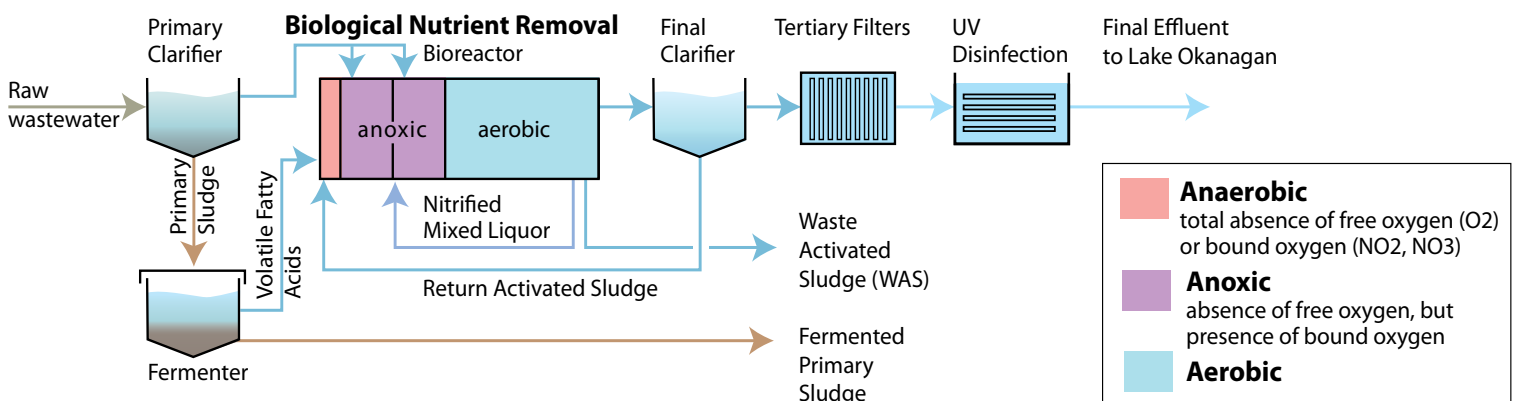
As a result of the energy reductions, the City of Kelowna receives rebates from Fortis BC. These rebates are being used

to further the energy reductions. Outside lighting at the facility has been changed to LED, a new energy efficient air compressor will replace older models, and C2 water pumps have been retrofitted to allow more capacity and maintain energy efficiencies. With the changes to the C2 equipment additional pumping volumes will allow pumping of the facility effluent to be used for onsite irrigation and possibly irrigation of the sports fields adjoining the facility.

EOCB directors Mike Gosselin and Peter Coxon check out the submersible pumps in a dry well application. In case of flooding, pumps are required to run 24/7/365. Plant effluent is used in water jackets for cooling the pumps.



Wastewater treatment including biological nutrient removal





PLANT PROFILE VERNON

Completed in 2004, Vernon's water reclamation centre includes advanced nutrient removal and UV light disinfection.

by **Ryan Powell**

Vernon Water Reclamation Centre -
Operator II

If you are interested in a virtual tour of this facility, search "[Vernon Water Reclamation Centre Tour](https://www.youtube.com/watch?v=4n6dcYQjcrQ)" on Youtube, or follow the following link. <https://www.youtube.com/watch?v=4n6dcYQjcrQ>

The Vernon Water Reclamation Centre (VWRC) started operation in 1928. Over the years, the type of treatment has taken many forms. The VWRC's newest incarnation was commissioned in late 2004 and has taken the form of a modified Johannesburg BNR system, which includes treatment components such as a fine screen and grit removal, primary clarifiers, bioreactors, secondary clarifiers, sand filters and ultraviolet lights. Average flow is approximately 12,000m³/day.

The VWRC is staffed by a manager, an operations supervisor, three level II operators, two level I operators, one instrumentation tech/electrician, one laboratory technician, two full time spray irrigation operators, one seasonal spray irrigation operator/labourer and a receptionist.



Author Ryan Powell looks over a secondary clarifier as part of the daily checks.



Pretreatment

A 6mm fine screen removes most of the debris from the influent. Grit is removed using a vortex grit chamber and a grit classifier. The influent flows through a Parshall flume for flow measurement and into the influent lift station where it is pumped equally into the three primary clarifiers.

Primary treatment

The wastewater travels through the primary clarifiers. The settled solids are pumped to the fermenter. The scum which floats to the surface is skimmed off.

Secondary treatment

The effluent from the primary clarifiers flows into the bioreactors. In these bioreactors, the biochemical oxygen demand (BOD) and nutrients are reduced to a fraction of the incoming concentration using the bacteria in the reactor.

From the bioreactors, the flow enters the secondary clarifiers. The clear supernatant from these clarifiers flows to tertiary treatment. The settled solids are pumped back into the first cell of the bioreactor where they will provide continued treatment. A small portion of this flow is wasted as waste activated sludge (WAS) to the dissolved air flotation tank (DAFT) to maintain the desired level of bacteria in the treatment process.

Tertiary treatment

The secondary clarifier effluent is split into two sand filters where the solids are removed. Backwashed water is sent back to the beginning of the primary clarifier for further treatment.

The filtered water runs through a channel containing ultraviolet lights for disinfection. The effluent is now considered fully treated and is discharged into an equalization basin which acts as a wet well for the High Lift Pump Station. This station pumps the treated effluent up through a booster pump station, then on to the Mackay Reservoir nine kilometers away where the water is stored until it is used for irrigation.

Reclaimed water is used for spray irrigation

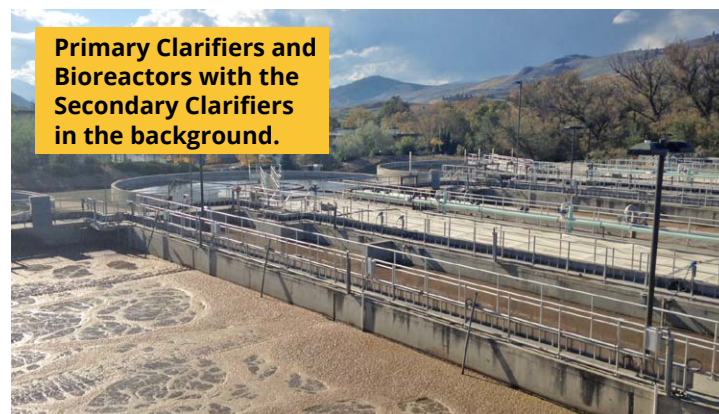
The Reclaimed Spray Irrigation Program began in 1977. Although the use of reclaimed water is not uncommon, this program is unique for this region because it uses all of the treated effluent for irrigation purposes. This program provides water to three golf courses, two sports fields, four forestry seed orchards, a multitude of ranches and hobby farms and the Regional Compost Facility. Typically the irrigation program begins providing water to the users in May and runs through to October. The City Of Vernon owns the reclaimed distribution system, which consists of underground pipe, above ground aluminum pipe, a chlorination station, two large pump stations, many smaller pump stations, numerous pressure reducing valve stations, many stand guns and large self-retracting reel irrigators and other irrigation equipment.

Solids Handling

The primary sludge is sent to the fermenter where it continues to thicken. The fermenter supernatant, which contains volatile fatty acids, is distributed into the anaerobic zone of all three bioreactors where it aids in phosphorus removal. The Waste Fermented Sludge (WFS) from the bottom of this tank is stored until dewatering. The Thickened Waste Activated Sludge (TWAS), flowing from the bottom of the secondary clarifiers, is thickened using one of the two DAFTs. The TWAS, WFS and a dose of polymer are pumped into two centrifuges where the solids and liquids are separated. Biosolids are trucked to the regional compost facility and processed into nutrient rich OgoGrow compost.



The Headworks room has a fine screen, grit removal system, and Parshall Flume.



Primary Clarifiers and Bioreactors with the Secondary Clarifiers in the background.



Ryan Powell checks sludge depth in a secondary clarifier.



Mackay Reservoir at the start of irrigation season.



Mackay Reservoir at the end of irrigation season.



BENEFITS OF THE PROFESSIONAL OPERATOR DESIGNATION



by Brian Thorburn, PO

Having a career as a Professional Operator shows an added commitment to our industry, showing that 'you talk the talk' and 'walk the walk'.

Having a career as an *Operator* is very rewarding in so many ways. It is being a protector of public health, and the environment - we are the frontline for this defense.

Having a career as a Professional Operator shows an added commitment to our industry, showing that 'you talk the talk' and 'walk the walk'.

A Professional Operator is bound like other professions to follow set requirements, to be ethical, to always do the right thing, and to show a commitment to continued professional development.

This is all backed up by C₂EP and ABC and their commitment for up-to-date

examinations that are relevant to our industry today. There are many benefits to being a Professional Operator other than just putting PO after your name. Professional Operators are held to a higher standard in our industry and can be called upon to help develop and vet new exam questions and examinations, to mentor Operators, to assist other Operators during emergency situations, and many others benefits where we can contribute to the industry we work in.

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EOCP Provides Special Professional Designation Opportunity this Spring

PROFESSIONAL OPERATOR CERTIFICATION AND DESIGNATION



Professional Operators of British Columbia & Yukon

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Christopher Kerman, PO (WWT)
Dan Skidmore, PO (Coll)
John Kalinczuk, PO (Dist)
John Reynolds, PO (WT)
Kevin Vilac, PO (WWT)
Mike Gosselin, PO (WWT)
Mike Humes, PO (WWT)
Sean Lefebvre, PO (Dist)
Tyler Simmonds, PO (WWT)
William Osborne, PO (Dist)



Built by Operators, for Operators, the Professional Operator (PO) certification and designation was created to give water and wastewater Operators the opportunity to let their peers, customers, and the public know they have mastered the most rigorous standards of their industry.

The PO program was designed by the Certification Commission for Environmental Professionals (C₂EP), an organization of volunteer water environment operations subject matter experts created by the Association of Boards of Certification (ABC), and offers water treatment, water distribution, wastewater collection, and wastewater treatment Operators the opportunity to

earn certification in one of four levels of increasing eligibility requirements and exam complexity from Class I through Class IV. In addition to meeting the appropriate set of eligibility criteria and passing their exam, applicants for PO certification must agree to adhere to the Professional Operator Code of Conduct. Operators earning any of these certifications are granted the right to refer to themselves as "Professional Operators."

Operator Recognition

The accomplishments of POs are being celebrated across the continent during **POWER** pinning and certificate events,

where the newest Professional Operators are recognized in front of their family, colleagues, and industry leaders. "The PO designation has given me a sense of validation for all the time and effort I've put into my career," said Luis Cuellar, PO and Water Treatment Plant Operator for the Alameda County Water District in Fremont, CA. "I strongly believe it will have a greater impact on future Operators who may have never thought of water treatment as a career path if not for the PO designation bringing more attention to the profession." Luis was honored during one of the first pinning ceremonies held in conjunction with AWWA ACE, and continues to encourage his colleagues to pursue the PO certification.

Begin Your PO Journey Today – Apply by May 1 for Special Benefits

Several individuals from British Columbia and Yukon have already risen to the challenge and successfully earned their own PO designations, and now EOCP has secured a unique opportunity for other Operators in BC and Yukon to help shape this program and earn their own Professional Operator certifications and designation at a significantly reduced cost this spring.*

To participate in this opportunity, BC and Yukon Operators should:

1. Begin their professional profiles in the online PO Portal (portal.abccert.org) to build their applications by documenting

general and continuing education, work experience, and certification history.

2. Submit their applications via the PO Portal no later than May 1.

3. Upon approval from ABC/C₂EP, schedule and complete their PO exam sometime between May 1 and May 31, 2017.

***Those who complete their PO exams in May will be issued a \$145 USD reimbursement from ABC within two weeks of completing their exam.**

Operators who pass the exam will not only earn the Professional Operator designation, but, as a part of this special

opportunity, be entered into a drawing for one of two **POWER** Prize Packages to participate in an industry **POWER** event at either WEFTEC 2017 (October 2-4, 2017, Chicago, IL) or AWWA ACE18 (June 11-14, 2018, Las Vegas, NV). Each package includes a full conference registration for the associated conference as well as a \$1000 USD travel stipend to be issued at the event.

Details on eligibility criteria and the standard application process are available at www.ProfessionalOperator.org. Contact Info@ProfessionalOperator.org for more information on this special opportunity.



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NOTICE TO TRAINING/EDUCATION PROVIDERS

END OF CEU TRACKING FEES

Once a course is completed, training/education providers submit a list of participants to the EOCP, and until now have been charged a CEU Tracking Fee as per the following formula:

$$\text{CEU Tracking Fee} = (\# \text{ of operators}) \times (\# \text{ of CEUs}) \times (\$5 \text{ per CEU})$$

In an effort to help our training/education providers with their business processes, and increase prompt reporting of CEUs, as of January 1st 2017, CEU Tracking Fees are eliminated.

Please DO submit CEUs for any Operators who have taken courses with you, as soon

as possible after completion, so that we can update our records promptly.

Other fees related to the Training Registry (Course Assessment, Instructor Assessment, Provider Assessment, Additional Instructor) remain unchanged.

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STATISTICS

September 1 to December 31, 2016



Exams

- **390** Operators wrote exams during this period.
- **312** were web based exams and **78** were paper based exams.

Continuing Education Units (CEUs)

- **2,909** Operators have submitted CEUs between September 1, 2016 to December 31, 2016, with a total of **4,262.95** CEUs earned during this period. This means that Operators spent **42,629.5** hours taking training!!

Facilities

- **40** facilities were added or upgraded during this time.

Definitions

WD	Water Distribution
WT	Water Treatment
WWC	Wastewater Collection
MWWT	Municipal Wastewater Treatment
IWWT	Industrial Wastewater Treatment
BWD	Bulk Water Delivery
SWS	Small Water System
SWWS	Small Wastewater System

FACILITY CLASSIFICATION to December 31, 2016

Classification	IV	III	II	I	Other	Total
WD	33	54	173	161		421
WT	19	43	127	44		233
WWC	14	21	79	96		210
MWWT	25	32	107	83		247
IWWT	2	1	5	1		9
SWS					857	857
SWWS					224	224
Total						2,201

OPERATOR CERTIFICATION to December 31, 2016

Classification	IV	III	II	MUII	I	MUI	OIT	Total
WD	86	219	964	9	1043	23	89	2,433
WT	48	74	225	8	410	13	73	851
WWC	13	77	561	8	817	21	54	1,551
MWWT	127	154	275	8	376	19	76	1,035
IWWT		4	19		24			47
Total	274	528	2,044	33	2,670	76	292	5,917
BWD								60
SWS								1,211
SWWS								385
Total								7,573

CONTEST

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